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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/473,012	10/01/1999	PAUL ARMIROLI	1948-4628	9484

7590 04/29/2003
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EXAMINER

NGUYEN, TRAN N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/473,012	ARMIROLI ET AL.	
	Examiner	Art Unit	
	Tran N. Nguyen	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 31 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input checked="" type="checkbox"/> Other: <u>attachment ①</u> |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

1. **Claim 5** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, “the strips interposed between respective opposed faces of the magnet and the first portion and the second portion respectively of at least one of the grooves” is indefinite the first strip is recited to locate between the magnet’s face and the first portion of the groove (lines 7-9 of claim 5). Therefore, it is unclear the term “the strips” implies either the first and second strips or any other strips besides the first and second strips. If the first case should be correct, i.e., “the strips” implies both the first and second strips, than the above recitation is unclear or possibly confusing to repeat the location of the first strip.

Withdrawn Allowable Subject Matter

2. **Claims 5 and 20** were indicated as allowable subject matters in the previous Office Action is hereby withdrawn based on new ground of rejection herein.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-5, 12-14, 16-20, 27-28, and 30** are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Radomski (EP 0 425 132 A1)**, in view of **Irie et al (US 5973435)**.

Radomski substantially discloses the claimed invention. Particularly Radomski discloses, as shown in fig 2 (an enlarged copy of fig 2 is hereby enclosed) that the magnet (54) is engaged between two interlaced poles' surfaces (30c, 32c). Even though Radomski's figure 2 shows each of these surfaces is shown (by fig 2) as surfaces of an undercut groove with inner and outer flange therebetween, Radomski is silent about these features in the specification.

Irie, however, teaches an alternator for a vehicle (as shown in figs. 1-2 and 4-5) comprising: two claw-pole pieces (18, 20) interlacing, each of the poles of the claw-pole pieces (18, 20) having a groove-formed flange portions (40, 42) for accommodating at least one magnet (34); non-magnetic strip (30) made of resin (col 3 lines 18-27), obviously resin is less hard than the permanent magnet that is interposed between a face of the magnet and a first portion of at least one of the grooves.

Regarding claims 1-4 and 12-14, Irie provides the teaching of the present claimed invention of an alternator *having the poles including a first flange and a second flange formed an undercut groove therebetween, and a strip, made of resin which is less hard than the magnet, is interposed between a face of the magnet and a first portion of at least one of the grooves* for respectively securing the magnet between the poles and provide heat resistant means thereof.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the Radomski's alternator by configuring the poles with *a first flange and a second flange formed an undercut groove therebetween, and a strip, made of resin which is less hard than the magnet, is interposed between a face of the magnet and a first portion of at least*

one of the grooves, as taught by Irie. Doing so would respectively provide not only means to firmly secure the magnet between the poles but also to increase magnetic permeance between the rotor and the stator, as well as heat resistant means for the rotor.

Those skilled in the art would realize that the importance of Irie teaching is that the flanges (40, 42) not only hold the magnet securely against the centrifugal force during operation but also increase magnetic permeance between rotor and stator. Also Ire teaches that the non-magnetic strip (3) contacts the surface of the magnetic and is interposed between the magnet and the flanges (40, 42) of the poles (as shown in fig 4). Thus, the non-magnetic strip can serve as a secure means and heat resistant means for the magnet.

Thus, **regarding claim 5**, by applying the Irie's essential teaching of the groove profile formed by flanges (40, 42) and the non-magnetic strip (30) is to serve as heat resistant, and as a securing member of the magnet therebetween, it would have been obvious to an artisan to duplicate the Irie's non-magnetic strip to provide two nonmagnetic strips for the Radomski's alternator as means for securing the magnet and resistant heat thereof. It has it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. vs. Bemis Co.*, 193 USPQ 8. Furthermore, evidently, the present claimed invention's specification (page 6, lines 23-28) discloses an embodiment of Figure 3, which is similar to the embodiment of Figure 2, with an additional second strip covering the inner face of the magnet. However, the applicant fails to provide any an expected result(s) or advantage(s) of the second strip as part of the rotor. Therefore, it is understood that the addition, as a duplication, of the nonmagnetic strip is an obvious engineering design choice to provide additional secure means thereof.

Again, the importance of Irie teaching of providing the poles with flanges (40, 42) not only hold the magnet securely against the centrifugal force during operation but also increase magnetic permeance between rotor and stator, and the non-magnetic strip (3) contacts the surface of the magnetic and is interposed between the magnet and the flanges (40, 42) of the poles. Those skilled in the art would realize that Irie teaches that the outer flanges (40, 42) serves as magnet holding and magnetic flux permeance means to the outer surfaces of the magnet and the poles. By applying this essential teaching, it would have been obvious to an artisan to apply this essential teaching in providing, or duplicating, the flanges in the inner surfaces of the poles and a second strip disposed between the inner flanges of the poles and the magnet to secure the magnet therein

Regarding claims 16-20, 27-28, and 30, by applying the essential teachings of Irie, it would have been obvious to one skilled in the art at the time the invention was made to modify the Radomski's alternator by configuring the poles with inner flanges and outer flanges to form a groove profile and providing a non-magnetic strip interposed between the groove's first and second portions and the magnet. Doing so would ensure the magnet is firmly secured between the interlaced poles, wherein the groove profile is formed by poles' flanges for holding the magnet securely against the centrifugal force during operation, and wherein the two duplicated non-magnetic strips being interposed between the magnet and the first and second portion of the groove are served as a reinforcing secure means and heat resistant means for the magnet.

- 4. Claims 6-8, 15, 21-23 and 29** are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Radomski** and **Irie et al** , as applied in the rejection of the base claims, and further in view of **level of ordinary skills of a worker in the art**.

Regarding the material of the strips to be glass fiber embedded in pre-impregnated plastic, as recited in claims 15 and 29, Irie discloses the strips formed of resin, which is less hard than the permanent magnet to be flexibly fitted to the grooves, and having thermal conductive property for heat ventilation. Those skilled in the art would have the necessary knowledge to apply the Irie's essential teaching and selecting a suitable less-hard non-magnetic material to formed the strips.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select material of the strips to be glass fiber embedded in pre-impregnated plastic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 6-8 and 21-23 the combination of the Radomski and Irie refs discloses the claimed invention, except for the added limitations of the groove has an U-shaped profile or a V-shaped profile, as recited in these claims.

Regarding the U-shaped profile or the V-shaped profile of the groove, the prior art combination does disclose that the claw poles are configured with groove for accommodating the magnet therein in order to retain the magnet in place. Those skilled in the art would understand that configuring a groove with different profiles would be an engineering design choice based upon the size and shape of the magnet that being employed in the alternator.

Thus, it would have been an obvious matter of engineering design choice at the time the invention was made to configure the pole's groove with either an U-shaped profile or the V-shaped profile, since such a modification would have involved a mere change in the size or shape of a component. A change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

- 5. Claims 9 and 24** are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Radomski and Irie**, as applied in the rejections against the base claims, and in view of **Yamada et al (USP 5734216)**.

The combination of the Radomski and Irie refs discloses the claimed invention, except for the limitations of a layer of adhesive that is more flexible than the magnet, the adhesive layer being interposed between the strip and the magnet.

Yamada, however, teaches a magnet rotor for a dynamoelectric machine comprising a yoke (1) covering one circumferential face of a magnet (2); an adhesive layer (3), which is made of silicone-system adhesive which is more flexible than the magnet, interposed between the magnet (2) and the strip (1) (figs. 1-2A). Yamada teach that by providing an adhesive layer between the magnet and the yoke the magnet can be effectively prevented from being thermally damaged or broken even in used of high temperatures (col 2, lines 1-4).

Thus, it would have been an obvious matter of engineering design choice at the time the invention was made to modify the alternator by providing a layer of adhesive between the strip and the magnet, as taught by Yamada et al, because this would effectively prevent the magnet from being thermally damaged or broken even in used of high temperatures (col 2, lines 1-4).

- 6. Claims 10-11 and 25-26** are rejected under 35 U.S.C. § 103(a) as being unpatentable Radomski, Irie and Yamada, as rejected in the rejection against the base claims, and in view of Mitcham et al (USP 5877578).

The combination of the Radomski, Irie and Yamada refs discloses the claimed invention, except for the added limitations of the magnet including two separate parts bonded together by a layer of the adhesive material.

Mitcham et al, however, disclose a permanent magnet rotor (figs. 2-6) comprising: a plurality of separate magnet parts (20) that are bonded together. Mitcham et al teach that

the magnets are subdivided to reduce the generation of eddy current in the magnet (col. 2 lines 29-31, 34-37).

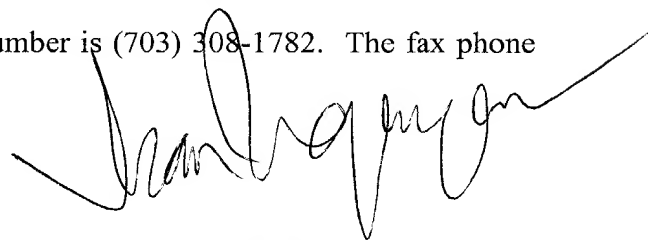
Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the alternator by configuring the magnet as a plurality of separate magnets bonded together by a layer of adhesive material, as taught by Mitcham et al, because this would provide a composite magnet that would reduce the generation of eddy current in the magnet (col. 2 lines 29-31, 34-37) resulting increasing effective performance of the alternator.

Regarding the adhesive material as the same adhesive material that is used for bonding the strip and the magnet, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the adhesive material for bonding the magnets together to be the same as adhesive material for bonding the strip and the magnet, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran Nguyen whose telephone number is (703) 308-1639.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-1782. The fax phone number for this Group is (703) 305-3431 (32).



TRAN NGUYEN
PRIMARY EXAMINER